CLAIMS

1.   A service providing device for providing a service for a user in which the service providing device provides service information for user by means of a plurality of physical devices available to the user, the service providing device comprising:
    an interface portion connected with a user and a physical device management portion which manages the information related to user and the information related to the physical devices available to the user;
    a monitoring portion for obtaining the information of the managed physical devices and/or of the users via said interface portion;
    a negotiating portion communicating with a service provider and selecting one service type from the service types of the services provided by the service provider;
    a service processing portion communicating with the service provider and transferring the service information of the service type to be interchanged between the user and the service provider;
    a service information redistributing portion for receiving the service information supplied by the service provider to the user and transferred by said service processing portion, and for distributing the service information to the corresponding physical device and/or the combination of the physical devices based on the capabilities of the physical devices needed by the selected service type;
    a controlling portion for controlling the operation of transferring information among the above-mentioned portions.

2.   The service providing device according to claim 1, characterized in that:
    said negotiating portion is configured to determine a service type for the user, based on the available physical service information obtained from the monitoring portion and the information of the physical devices capability requirement of each of the service types provided by the service provider.

3.   The service providing device according to claim 2, characterized in that:
    said negotiating portion is configured to further determine the service type for the user based on the user favorite information included in the user information.

4.   The service providing device according to claim 3, characterized in that:

said service information redistributing portion is configured to
further determine for the user the physical device and/or the combination
of the physical devices used for accepting the service, based on the user
favorite information included in the user information.

5.   The service providing device according to claim 2,
characterized in that:

said monitoring portion is configured to monitor whether the
available physical device and the available physical device information
and the user information managed by the user management portion have
changed; and

when the change affects the current service provision, the monitoring
portion notifies the negotiating portion to determine a new service type,
or notifies the service information redistributing portion that it is
needed to use the replacing physical device/combination of physical
devices,

said negotiating portion determines a new service type for user based
on the current available physical service information, in response to the
notification of determining the new service type, said service information
redistributing portion determines a new physical device/combination of
physical devices based on the physical device capability required by the
new service type, and continues to distribute the service information to
the corresponding physical device/combination of physical devices;

in response to the notice of using the replacing physical device,
said service information redistributing portion selects a replacing
physical device and continues to distribute the service information to the
corresponding physical devices.

6.   The service providing device according to claim 2,
characterized in that:

said service information redistributing portion controls the
synchronization of the physical devices accepting the service.

7.   A service providing method for providing services for a user,
wherein the service providing method provides service for the user by
means of a plurality of physical devices available to the user, the
service providing method comprising:

receiving a service request sent from a user to a service provider
via a physical device, or receiving a request for providing a service to a
user from a service provider;

obtaining the information related to the user and the information
related to the physical devices available to the user;

selecting one service type from the service types of the services that can be provided by the service provider;

distributing the service information, sent from the service provider to the user, to the corresponding physical device and/or the combination of physical devices based on the physical devices capability needed by the service type.

8.   The service providing method according to claim 7, characterized in that:

said step of selecting a service type comprises determining a service type for the user, based on the available physical service information and the information of the physical devices capability requirement of each of the service types provided by the service provider.

9.   The service providing method according to claim 8, characterized in that:

said step of selecting a service type comprises further determining a service type for the user based on the user favorite information included in the user information.

10.   The service providing method according to claim 9, characterized in that:

said service information redistributing step comprises further determining the physical device(s) to accept the service for the user, based on the user favorite information included in the user information.

11.   The service providing method according to claim 8, characterized in that:

monitoring whether the available physical service information and the user information have changed; and

when the change affects the current service provision, determining a new service type for the user or using the replacing physical device/the combination of physical devices,

wherein said step of determining a new service type includes determining a new service type for the user based on the new available physical device information, and continuing to distribute the service information to the corresponding physical device/the combination of physical devices based on the physical device capabilities of said new service type;

said step of using the replacing physical devices includes selecting the corresponding physical device/the combination of the physical devices

and continuing to distribute the service information to the corresponding physical device/the combination of the physical devices.

12. The service providing method according to claim 7, characterized in that:

when the device to accept the service is a combination of the physical devices, controlling the synchronization among the physical devices of the combination of the physical devices.

13. A sentient network generating method, the sentient network including a user object and one or more device objects available to the user object, said sentient network generating method comprising:

receiving the registration request from at least one user and building the user object(s) for the user(s);

receiving the registration request from at least one device and building the device object(s) for the device(s);

associating a user object with at least one of the device objects to form a sentient network.

14. The sentient network generating method according to claim 13, characterized in that: said user object includes at least one of the personal device identification information, the physiological characteristics information and the social connections information of the user,

said device object includes at least the basic information of the device, the on line status information of the device and the access interface information of the device, the basic information of said device including the identification information of the device and/or the capability information of the device.

15. The sentient network generating method according to claim 14, characterized in that: said sentient network generating method further comprises collecting the static and/or dynamic environment information of a plurality of said device(s) and/or said user(s).

16. The sentient network generating method according to claim 14, characterized in executing associating operation based on the personal device identification information of the user.

17. The sentient network generating method according to claim 14, characterized in executing associating operation based on the social connections information of the user.

18.   The sentient network generating method according to claim 15, characterized in executing associating operation based on at least one of the personal device identification information, the physiological characteristics information and the social connections information of the user.

19.   The sentient network generating method according to claim 18, characterized in executing associating operation based on the environment information.

20.   The sentient network generating method according to any one of claims 13 through 19, characterized in that: said user object further includes the user favorite information and/or the user authorization information,
        executing associating operation based on the user favorite information and/or the user authorization information.

21.   The sentient network generating method according to any one of claims 13 through 19, characterized in further executing associating operation based on the status information of the device object(s).

22.   The sentient network generating method according to any one of claims 13 through 19, characterized in further executing associating operation based on the changed user object(s) information or the changed device object(s) information.

23.   The sentient network generating method according to claim 15, characterized in further collecting the user information or the device information through a wireless sensor network in which said user information or said device information are broadcast via one agent device attached to a user or a device.

24.   The sentient network generating method according to claim 23, characterized in that: said agent device further receives the user information or device information broadcast from other agent devices.

25.   The sentient network generating method according to claim 23, characterized in that: said wireless sensor network further collects the user information or the device information broadcast by a plurality of agent devices through an information collecting device;

said user registration step and said device registration step further receive respectively said user information or said device information collected by said information collecting device;

said environment information collecting step further receives said user information or said device information collected by said information collecting device.

26. The sentient network generating method according to claim 23, characterized in that: one agent device in said wireless sensor network collects the user information or the device information broadcast by the other agent devices;

said user management step and said device management step receive the user information or the device information respectively from said agent device;

said environment information collecting step further receives the user information or the device information from said agent device.

27. A sentient network generating device for carrying out the method of any preceding claim.

28. A service providing system, comprising a sentient network generating device and a service providing device built for each user, wherein the service providing device for each user provides service information for the user by utilizing at least one available physical devices determined by the sentient network generating device for the user,

said sentient network generating device comprising:

a user management portion for receiving the registration request from at least one user, and for storing the user information;

a physical device management portion for receiving the registration request from at least one device, and for storing the device information;

an associating portion for associating a user with at least one of said devices to generate a sentient network;

the service providing device for each user comprising:

an interface portion connected to the sentient network generating device and used for receiving or transmitting the information from/to said sentient network generating device ;

a monitoring portion for obtaining from the sentient network, via the interface portion, the physical device information associated by the sentient network generating device for the user;

a negotiating portion communicating with a service provider and selecting one service type from the service types of the services provided by the service provider;

a service processing portion communicating with the service provider
and transferring the service information of the service type to be
interchanged between the user and the service provider;

a service information redistributing portion for receiving the
5   service information supplied by the service provider to the user and
transferred by said service processing portion, and for distributing the
service information to the corresponding physical device and/or the
combination of the physical devices based on the capabilities of the
physical devices needed by the selected service type;
10 a controlling portion for controlling the operation of transferring
information among the above-mentioned portions.

29.   A service providing method for providing services for a user,
comprising a sentient network generating step and a step of providing
15 services for the user, wherein the service providing step provides service
information for the user by utilizing at least one of the available
physical devices determined by the sentient network generating step for
the user,

said sentient network generating step comprising:
20 a user management step for receiving the registration request from at
least one user and for storing the user information;

a physical device management step for receiving the registration
request from at least one physical device and for storing the physical
device information;
25 an associating step for associating a user with at least one of the
devices to generate a sentient network;

for each user, the service providing step comprising:

receiving a service request sent from a user to a service provider
via a physical device, or receiving a request for providing a service from
30 a service provider to a user;

obtaining the physical devices information associated by the sentient
network generating step for the user;

selecting one service type from the service types of the services
that can be provided by the service provider;
35 distributing the service information supplied by the service provider
to the user to the corresponding associated physical device and/or the
combination of physical devices based on the physical devices capability
needed by the service type.